

L 05707-67 EME(K)/EMT(1)/EMT(m)/T/EME(t)/ETI LJP(a) JH/ID/WW  
ACC NR: AP6029650 SOURCE CODE: UR/0250/66/010/008/0558/0561

AUTHOR: Severdenko, V. P.; Labunov, V. A.

ORG: Belorussian Polytechnical Institute (Belorusskiy politechnicheskiy institut)

TITLE: New <sup>10</sup>ultrasonic <sup>2/</sup>vibration systems for units processing metals under pressure with ultrasound application

SOURCE: AN BSSR. Doklady, v. 10, no. 8, 1966, 558-561

TOPIC TAGS: ultrasonic vibration, ~~ultrasonic vibration system~~, ~~ultrasonic metal deformation~~, ~~ultrasonic metal working~~

ABSTRACT: Since the existing systems for plastic working of metals with simultaneous application of ultrasound do not produce satisfactory results because the standing wave exists only during the first deformation stages, two new modified systems were developed. In both new designs the ultrasonic system is acoustically isolated from the mass of the metal-forming unit. Therefore, both systems can be used with any deformation force. In cold extrusion of small aluminum billets with reductions of 36—84%, which required forces of 1700—7300 kg (without ultrasound), the old system produced no improvement, while the new systems reduced the pressure for extrusion with 36, 52, and 84% reduction from an initial 1700, 2400, and 7300 kg to 600—1000, 1200—1700, and 5300—6200 kg. The lower values of pressure were obtained with a system which was provided with two magnetostrictive transducers with metal placed

Card 1/2

L 05709-67

ACC NR: AP6029650

between them. In this system, each transducer with attached elements operates under the condition of a standing wave. 0  
-[ND]

SUB CODE: 13/ SUBM DATE: 02Jun66/ ORIG REF: 007/ OTH REF: 001 / ATD PRES: 5069

*me*  
Card 2/2

ACC NR: AT6036702

SOURCE CODE: UR/0000/66/000/000/0101/0107

AUTHOR: Severdenko, V. P. (Academician AN BSSR); Kalachev, M. I.; Ankut, P. P.

ORG: none

TITLE: The change in the microstructure of titanium as a function of deformation conditions

SOURCE: AN BSSR. Fiziko-tehnicheskiy institut. Plastichnost' i obrabotka metallov davleniyem (Plasticity and metalworking by pressure). Minsk, Nauka i tekhnika, 1966, 101-107

TOPIC TAGS: titanium, metallographic examination, plastic deformation, tensile property, compressive property, torsion, high temperature, low temperature, twinning

ABSTRACT: The microstructure of industrially pure titanium (VTI-1) was studied as a function of deformation conditions. Tensile, compressive, and torsion tests were performed at different temperatures and strain rates. For all stress states, twinning was observed at -110 and -196°C. At the lower temperatures the critical resolved shear stress became greater than the critical twinning stress; at liquid nitrogen temperatures, for example, 5 possible twin planes were active compared to only one slip plane, (1010). Micrographs showed multiple twinning at -196°C and strain rates of  $2.0 \text{ min}^{-1}$  -  $4 \cdot 10^{-3} \text{ min}^{-1}$ , resulting in a needle-like structure. For small deformations, the twins

Card 1/2

ACC NR: AT6036702

tended to align parallel to the maximum deformation direction, while at higher deformations the orientation increased and the angle between the axis of the sample and the needles decreased. In the zone of maximum deformation the twin size was small relative to the grain size. This was true especially of compressive loading, where two prominent zones occurred. At the ends of the sample the deformation was less than at the center. In the temperature range of 20-400°C the microstructure of deformed samples was a function of the stress state. Twins were absent in tension where slip occurred more readily. Much twinning occurred in torsion at 20-400°C, since shear was more conducive to twin formation; however, at high shear deformations and at temperatures above 400°C, slip became the dominant mechanism. Zones were again apparent during compression at 20-400°C. Only at the center did large deformations cause grain fragmentation, and dark etching shear bands were observed along the maximum shear planes. Upon closer examination, these bands revealed micro- and macrocracks. The range 600-800°C marked the initiation of recrystallization in titanium. The recrystallization tendencies varied as a function of strain rate at 600°C, but were stable at all strain rates at 800°C. Torsion testing at 800°C differed from tensile or compressive testing in that slip and twinning occurred simultaneously to produce two new twin planes. Orig. art. has: 3 figures.

SUB CODE: 11/

SUBM DATE: 08Jul66/

ORIG REF: 003

Card 2/2

ACC NR: AT6036703

SOURCE CODE: UR/0000/66/000/000/0155/0157

AUTHOR: Severdenko, V. P. (Academician AN BSSR); Maley, T. P.

ORG: none

TITLE: The production of intricately shaped parts by liquid steel forging'

SOURCE: AN BSSR. Fiziko-tehnicheskiy institut. Plastichnost' i obrabotka metallov davleniyem (Plasticity and metalworking by pressure). Minsk, Nauka i tekhnika, 1966, 155-157

TOPIC TAGS: molten metal forging, shaft, tractor/ MTZ-50 tractor

ABSTRACT: Liquid steel forging was used in the production of a transmission guide shaft for the MTZ-50 tractor. The liquid forging technique was developed at the Belorussian Polytechnical Institute. A special die mold was built with two mutually perpendicular joints, one of which served as a plunger and master die. The plunger was made of 3Kh2V8 steel which was heat treated to 30-35 R<sub>c</sub>. In some parts of the die where maximum temperatures occurred, 3Kh2V8 die inserts were used. The punch-die clearance was 0.2-0.5 mm. During liquid forging the punch overlaps the die cavity and the injected metal crystallizes under pressure. A 50 kilogram induction fur-

Card 1/2

ACC NR: AT6036703

nace melted the steel, and an IZh-50 hydraulic press supplied the required pressure. A refractory slurry (87% water by weight) was used as a die lubricant. The liquid forging conditions were as follows: metal temperature (steel 45) before initial pressing was 1500-1520°C, the liquid forging pressure was 78.4-98 mN/m<sup>2</sup> (8-10 kg/mm<sup>2</sup>), time for holding the pressed part under pressure was 15-18 sec. Extraction of the finished part was done semiautomatically. The steel parts (head of guide shaft) had clean surfaces with a 4V finish (GOST 2789-59), and a uniform fine-grained structure. Thermal shrinkage was about 1%. The process had the following economic advantages over forging: 15 min production time compared to 40 min (conventional forging), negligible scrap loss, a press capacity of 50 T instead of 150 T needed for conventional forging. Orig. cart. has: 1 figure.

SUB CODE: 13/

SUBM DATE: 08Jul66

Card 2/2

ACC NR: AT6036708

SOURCE CODE: UR/0000/66/000/000/0247/0256

AUTHOR: Severdenko, V. P. (Academician AN BSSR); Reznikov, Yu. N.

ORG: none

TITLE: The effect of ultrasonic oscillations of various directions on the wire drawing process of metals

SOURCE: AN BSSR. Fiziko-tekhnicheskiy institut. Plastichnost' i obrabotka metallov davleniyem (Plasticity and metalworking by pressure). Minsk, Nauka i tekhnika, 1966, 247-256

TOPIC TAGS: ultrasonic vibration, ultrasonic impulse, metal drawing, longitudinal ultrasonic wave, transverse wave

ABSTRACT: A theoretical analysis, verified by experimental data, showed that longitudinal oscillations were most effective in lowering frictional forces during tube drawing (no mandrel). Oscillations that are perpendicular to the drawing die may be used during tube drawing on a short mandrel, when the application of longitudinal oscillations are difficult or impossible. The effect of ultrasonics on the lowering of contact friction was analyzed by equating the applied impulse to the impulsive friction force acting on the wire or tube per unit time. A hodograph gave the geometrical relationship between the velocity vectors. Trigonometric relationships between the angles

Card 1/2

ACC NR: AT6036708

and velocity vectors were obtained from the hodograph in deriving an integral equation for the ratio of frictional forces during ultrasonic wave application relative to ordinary drawing. This equation was approximated by Simpson's rule and a numerical method was used to obtain values for each term in the approximation. A table gave numerical values for each term for values of  $\beta$  ranging from 0.0004 to 0.15, where  $\beta = V_0/\alpha\omega$ ,  $V_0$  is the slip velocity,  $\alpha$  is the oscillation amplitude, and  $\omega$  is the angular frequency. The theoretical study showed that longitudinal oscillations were the most effective in lowering frictional forces. Experimental data verified this for values of  $\beta$  ranging from 0 to 0.14. Transverse oscillations were least effective in lowering frictional forces, while rotational oscillations were almost as effective as longitudinal ones. A schematic diagram shows the experimental apparatus used for tube drawing in an ultrasonic field. Experiments on copper tube showed that longitudinal oscillations lowered the drawing force 30-35%, and transverse--15%. Orig. art. has: 3 figures, 2 tables, 15 formulas.

SUB CODE: 11/

SUBM DATE: 08Jul66/

ORIG REF: 007/

OTH REF: 002

Card 2/2

ACC NR: AP7000155

(A)

SOURCE CODE: UR/0250/66/010/011/0847/0848

AUTHOR: Severdenko, V. P. (Academician AN BSSR); Ryzhkovich, R. L.

ORG: Belorussian Polytechnic Institute (Belorusskiy politekhnicheskiy institut)

TITLE: Investigation of plastic deformation propagation under dynamic loading

SOURCE: AN BSSR. Doklady, v. 10, no. 11, 1966, 847-848

TOPIC TAGS: ~~dynamic~~ plastic deformation, plastic deformation propagation, *static*  
*lead test, dynamic loading, aerodynamic loading*

ABSTRACT: Under static loading a cylindrical specimen deforms uniformly from both ends, but under dynamic loading the plastic deformation is localized at the impacted end of a cylindrical specimen. The cause of nonuniform deformation distribution in specimens depends on the nonuniform distribution of inertia forces in specimens under the effect of which the deformation takes place. A scheme was plotted (see Fig. 1) in order to determine the effect of inertia forces on the deformation propagation induced by dynamic loading. According to this scheme, the usual specimen is substituted by a system consisting of two identical cylinders of the investigated material 3, 5 and rigid body 2, whose mass  $m_2$  can be changed during the experiment over a wide range. It was found that after striker 1 impacts upper specimen 5, lower specimen 3 is less deformed than specimen 5. The larger the mass  $m_2$ , the less deformed is specimen 3. Figure 1b can be regarded as a model of a long, uniform specimen, the mass of which is equal to the mass of the whole system (5, 2, 3). The change of mass  $m_2$  of specimens 3 and 5 make it possible to estimate the metal behavior at various distances from the

Card 1/2

ACC NR: AP7000155

struck end and determine the deformation propagation as dependent on the striker speed. Orig. art. has: 2 figures.

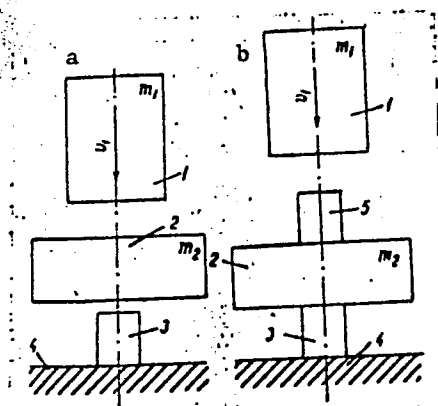


Fig. 1.

SUB CODE: 20/ SUBM DATE: 02Jun66/ ORIG REF: 002/

Card 2/2

L 10732-65 EWT(m)/EWP(k)/EWP(b) Pf-4 BSD/ASD(m)-3/ASD(f)-2 JD/JG/MLK

ACCESSION NR: AT4046827

S/0000/64/000/000/0114/0117

AUTHOR: Severdenko, V.P., Kal'nitskiy, R.M.

TITLE: Plasticity and strength of tungsten in short-term tests

SOURCE: AN SSSR. Nauchnyy sovet po probleme zharoprochnykh splavov. Issledovaniya staley i splavov (Studies on steels and alloys). Moscow, Izd-vo Nauka, 1964, 114-117

TOPIC TAGS: tungsten, tungsten plasticity, tungsten strength, powder metallurgy, testing procedure, tungsten powder

ABSTRACT: The authors determined the plasticity and strength of 99.95% pure sintered tungsten powder prestressed 93% at 20-1000C and a rate of  $2.36 \times 10^{-2}$  to  $5.55 \times 10^{-1} \text{ sec}^{-1}$ . After pointing out that there is uniformity of opinion on strength testing but different points of view on plasticity testing, they analyze the problem on the basis of the equation:

$$\sigma_n^3 \tau^3 = \sigma_n^2 \tau^2$$

(1)

where  $\sigma$  and  $\tau$  are the normal and shear stresses, respectively; the left side of the equation expresses the product of the volumetric (three-dimensionally) stressed condition, while

Card 1/4

L 10732-65

ACCESSION NR: AT4046827

the right side expresses the linearly stressed condition. The test results obtained on a Shopper-250 machine are illustrated in Figs. 1 and 2 of the Enclosure. They show that the plasticity relationships are more clearly expressed than the actual deformation. Plasticity increases together with the testing temperature and with a decreasing deformation rate. Uniform contraction of the tungsten is limited to a certain temperature, which increases as the deformation rate increases. The temperature of transition from the brittle to the plastic state shifts toward higher temperatures as the rate and radial tensile stresses increase. In the plastic range, the strength drops as the temperature increases. The results of this investigation may be applied to the selection of the best conditions for deformation and use of sintered tungsten powder. Orig. art. has: 3 figures and 4 formulas.

ASSOCIATION: none

SUBMITTED: 16Jun64

ENCL: 02

SUB CODE: MM

NO REF SOV: 002

OTHER: 004

Card 2/4

L 10732-65  
ACCESSION NR: AT4046827

ENCLOSURE: 01

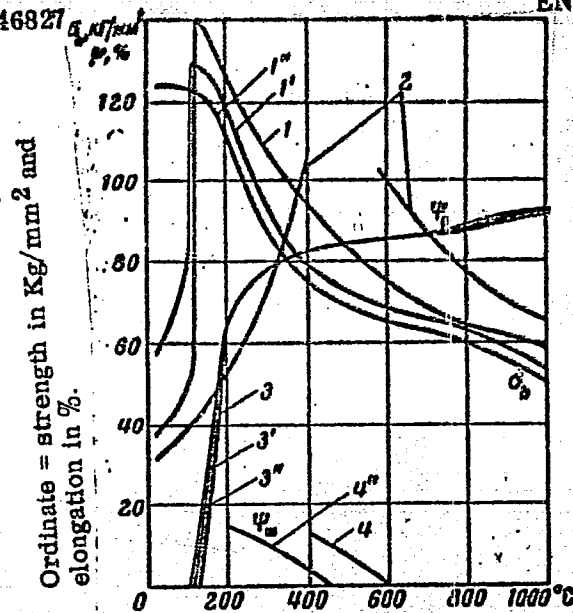


Fig. 1. Dependence of the actual ultimate strength of smooth (1), and notched (2) samples and of the overall (3) and uniform (4) relative contraction of smooth tungsten samples on the temperature. Indices without prime marks are for deformation rates of  $5.55 \times 10^{-1} \text{ sec}^{-1}$ , with a single prime, for  $3.09 \times 10^{-1} \text{ sec}^{-1}$ , and with a double prime for  $2.36 \times 10^{-1} \text{ sec}^{-1}$ .

Card 3/4

L 10732-65  
ACCESSION №: AT4046827

ENCLOSURE: 02

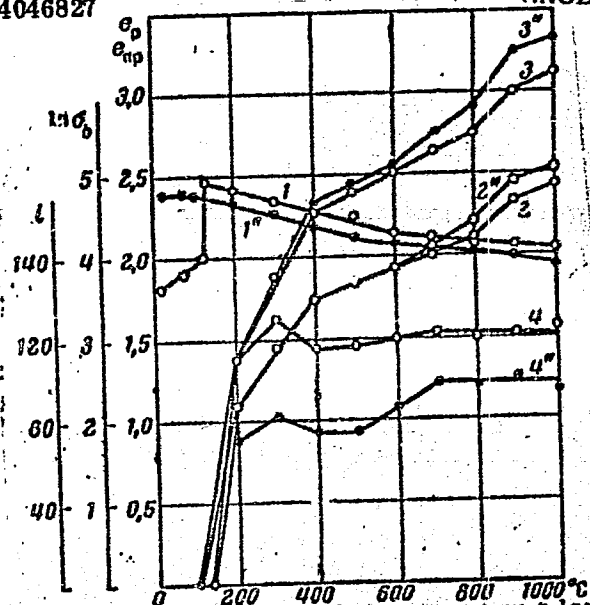


Fig. 2. Dependence of actual ultimate strength expressed as a logarithm (1), actual deformation (2), plasticity (3) and rate of hardening (4) of tungsten on the temperature. Indices the same as in Fig. 1.

Card 4/4

L 8644-65 EWT(m)/EWP(k)/EWP(b) Pf-4 JD/EW

ACCESSION NR: AP4044256

S/0250/64/008/007/0444/0446

AUTHOR: Severdenko, V. P.; Gurskiy, L. I.

TITLE: Spread in multistage deformation

SOURCE: AN BSSR. Doklady\*, v. 8, no. 7, 1964, 444-446

TOPIC TAGS: small reduction deformation, multistage deformation, multipass rolling, small reduction multipass rolling

ABSTRACT: The effect of the magnitude of per-pass reduction on the spread of rolled metal was studied with copper bars 11 mm thick and 15 mm wide. The bars, vacuum annealed at 650C, were rolled with a total reduction of 9—96% either in one pass or in several passes with an absolute reduction of 0.06 mm per pass. It was found that multipass rolling with small reductions per pass reduces considerably the spread of metal. For instance, a bar rolled in one pass with a reduction of 90% spread approximately 95%, while a bar rolled with the same total reduction of 90% but with small reductions per pass spread only 30%. Thus, in rolling with small per-pass reductions, the displacement of metal in the transverse direction and consequently

Card

1/2

L 8644-65

ACCESSION NR: AP4044256

the residual stresses caused by this displacement are considerably smaller than those in rolling with high reductions. Orig. art. has: 2 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut, AN BSSR (Institute of Engineering Physics, AN BSSR)

SUBMITTED: 10Feb64

ATD PRESS: 3111 ENCL: 00

SUB CODE: MM, LE

NO REF SOV: 006 OTHER: 000

Card

2/2

SEVERENSKIY, E. F.

"Seismic Survey and Analysis of Seismic Observations in the USSR," one of the reports given at the 10th General Assembly of the International Union of Geodesy and Geophysics, Rome, 1954

Evaluation, B-86198 and 86204, 30 Jun 55

Influence of lead and antimony on the working of certain grades of brass. N. S. SEVERGIN. *Tsvetnyi Metal*, 5, 1695-701(1930); *J. Inst. Metals* 47, 668.—Brass with 62.5% Cu gave up to 30% waste in hot-rolling (ragged edges) and die-stamping (splitting). The former was found to be due to the presence of Pb, and the latter to Sb, which were introduced into the melt by using scrap cartridge cases. A series of brasses with varying Cu content and small quantities of Pb and Sb were tested for hot-rolling and stamping. The behavior during hot-rolling depends on both the Cu and the Pb contents, so that a diagram indicating the min. safe concn. of Pb for a given Cu content can be constructed. Brass with 62% Cu and 0.03% Pb can be readily hot rolled; brass with 63% Cu and 0.03% Pb cannot be rolled successfully. With 63% Cu, ragged edges occur, while with 64% Cu, it cannot be rolled at all. Cold-Sb, even up to 0.1%, appears to have no influence on the hot rolling properties. Cold-Pb, although Pb has rolling and die-stamping are markedly affected by even traces of Sb, although Pb has little effect. A brass contg. 0.009% Sb cannot be cold worked under various conditions, nor can one containing more than 0.005% Sb. No tests were made for ordinary purposes brass should not contain more than 0.005% Sb. A no., however, also made on Muntz metal, which showed good mech. properties even with 0.01% Sb, the limiting safe concn. being probably 0.02%. G. C.

G. C.

PROCESSES AND PROPERTIES INDEX																									
1ST AND 2ND ORDER													3RD AND 4TH ORDER												
<p>*Composition and Methods of Treatment of Nickel Silver Used for the Manufacture of Flat Springs. N. S. Severgin (<i>Metallurgy</i>), 1937, (9, 10), 92-100. [In Russian.] A study of alloys containing nickel 12-20, copper 60-69, and zinc 18-25% showed that segregation can be completely removed by hot mechanical treatment if the material is heated for 8 hrs. above 700° C. before rolling. A comparison of mechanical properties showed that the most suitable alloy for flat springs is that containing nickel 20, copper 60, and zinc 20%. The main cause of variations in the mechanical properties of different parts of the same strip are differences in degree of hardening by cold-work. Unsatisfactory scraping of the ingot is one of its explanations. Rolling of strip on rollers produces differences in the bending yield-points of different parts of the strip. Contamination with iron changes the mechanical properties, with the exception of the bending yield-point. - N. A.</p>																									
<p>ASME-STE METALLURGICAL LITERATURE CLASSIFICATION</p>																									
<p>EXPERIMENTAL</p>																									

LIT. AND ZND. CROSS																										PROCESS AND PROPERTIES INDEX																									
<p><b>Causes of the Hardness of Rolled Brass Strip (L. 66). N. S. Sovergin (Zet. Metall. (Non-Ferrous Metals), 1967, (12), 60-64).—[In Russian.]</b> Irregularities in the mechanical properties of brass strip after final annealing are caused by non uniform distribution of iron and phosphorus. Increased hardness is due to the considerable effect that phosphorus (and also to some extent iron) has on the recrystallization of a brass. The normal grain growth of a brass containing 0.15% iron can only be attained by increasing the annealing temperature, and not by prolonging the annealing at the usual temperature of 650°-680° C. In brass containing 0.004-0.006% phosphorus, the normal grain size can be produced if the duration of annealing is approximately doubled. In some cases the inhomogeneity of properties in strip of a uniform composition may be caused by insufficient annealing. —N. A.</p>																																																			
<p>AS 54 METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			

Composition and heat treatment of nickel silver used  
for flat springs. N. S. SYSSIGIN, *Metallurg* 12, No. 11,  
10, 102-103 (1947). The most satisfactory composition was  
found to be Cu 60, Ni 20 and Zn 20%. The material  
should be annealed at 300° for 45 min. before the final  
cold-rolling in which the reduction should be at least 40%  
H. W. Rathbone

ANALYSIS METALLURGICAL LITERATURE CLASSIFICATION

PROCESSING AND PROPERTY NOTES																									
<p>SA</p> <p>Causes of the hardening of brass bands (M 68) on the basis of the amounts of the original constituents. N. S. Sevast'yan. <i>Engrg. Metal.</i> 12, No. 12, 601-4 (1937); <i>Chem. Zvezd.</i> 1938, 11, 755-6. The chief causes of undesirable mech. properties in brass bands are variations in the P and Fe contents, as these elements influence the growth of the <math>\alpha</math>-crystals. In brass contg. more than 0.15% Fe normal growth of the <math>\alpha</math>-crystals can be obtained only by the use of a higher temp. (e.g., 720° for 0.15% Fe) instead of the usual temp. of 550-600°. With a P content of 0.004-0.006% heating for a longer period at the usual temp. gives normal grain size. With bands of normal compn. heating for an insufficient period can result in lack of uniformity of mech. properties. M. G. Moore</p>																									
<p>ASB 55A METALLURGICAL LITERATURE CLASSIFICATION</p>																									

*Met. Sci.*

*M*

PROCESSES AND PROPERTIES INDEX

11

\*Comparative Measurements of the Hardness of Some Alloys by the Brinell, Rockwell, and Shore Methods. Determination of the Conversion Factors from Hardness to Ultimate Tensile Strength. N. S. Severgin and A. S. Anufriev (*Zet. Metalli (Non-Ferrous Metals)*, 1936, (2), 54-60).—[In Russian.] The factors for the conversion of Brinell hardness numbers to tensile strength values are different for tempered and forged alloys, the ratio of the ultimate tensile strength to the Brinell number being about 0.5 for the first, and about 0.36 for the second group. The accuracy of these ratios is low; the error is, for instance, 8 kg./mm.<sup>2</sup> for the tensile strength of Monel metal. The ratio depends on the degree of cold-working. Curves are given for the ultimate tensile strength, and Brinell, Rockwell, and Shore hardness numbers for different degrees of cold-working of Monel metal, nickel, tin-zinc-bronze, and the brasses "L-62" and "L-68."—N. A.

COMMON ELEMENTS

COPPER

NON-FERROUS METALS

STEEL

IRON

ALUMINUM

BRASS

BRONZE

COMMON VARIABLE EFFECT

ASM-AIA METALLURGICAL LITERATURE CLASSIFICATION

STEEL

IRON

ALUMINUM

BRASS

BRONZE

SEVERGIN, N.S.

Deoxygenation or alloying N. S. Severgin (Ordina-  
 Edge Plant, Kolchugino). *Prilozhenie* 29, No. 6,  
 51-4 (1956). The optimum amt. of each element (Co, Ni,  
 Mn, and Mg) added as the alloying complex to the  
 charge should be evaluated in terms of the function or  
 which each element is intended, such as degassing, desulfur-  
 ing, crys. or modification, etc. But the problem of Ni p-  
 duction can best be solved only by melting and pouring in  
 I. Bendowit.

12

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for PG  
 amb

SEVERGIN, V. M.

Chemistry and technology of silicates in the works of  
V. M. Severgin. M. A. Buznorkov. *Sirokhi i Keram.*, 5  
[7] 14-17 (1948). Historical account of the scientific  
career of V. M. Severgin (1765-1826). B.Z.K.

ASIA SLA RETAILING AT LITERATURE CLASSIFICATION

Y30H 50H10V

PETRUNINA, Z.Ye.; SEVERGINA, L.G.

Ordovician stratigraphy of the northwestern Gornyy Altai. Mat.po  
geol.Zap.Sib. no.63:81-93 '62. (MIRA 16:10)

SEVERIKOV, L.A.

Using fibrous instead of metallic washers for closing spindle  
openings on roving machines. Obm.tekh.opyt. [MLP] no.16:36  
'56. (MIRA 11:11)

(Spinning machinery)

SEVERILOV, V.S., inzh.

New method for designing chamfered cones for hobbing cutters.  
Mashinostroenie no.2:21-23 Mr-Ap '62. (MIRA 15:4)

1. Zavod im. 15-letiya Leninskogo kommunisticheskogo soyuza  
molodezhi Ukrainy.

(Metal-cutting tools)

SEVERILOV, V.S.

Degree of the cutting-in in milling herringbone gears with hobbing cutters. Stan. 1 instr. 36 no.8:13-14 Ag '65. (MIRA 18:9)

SEVERILOV, V.S., inzh.; GURENKO, S.I., inzh.

Manufacture and use of high-module welded hobbing and disk cutters. Mashinostroenie no.4:18-19 J1-Ag '63. (MIRA 17:2)

1. Donetskii mashinostroitel'nyy zavod im. 15-letiya Leninskogo kommunisticheskogo soyuza molodezhi Ukrainy.

SEVERILOV, V.S., inzh.

Modernization of gear-milling machines for cutting gear wheels  
with elliptoid teeth. Mashinostroenie no.5:29-30 S-O '63.  
(MIRA 16:12)

1. Donetskii politekhnicheskii institut.

SEVERILOV, V.G., inzh.

Mechanization of the removing of tooth lands. Mashinostroenie  
no.4360-61 J1-Ag '64. (MIRA 17:10)

SEVERILOV, V.S.

Optimum parameters of the gripping cone of a hobbing cutter  
for cutting spiral gears. Stan. 1 instr. 35 no.12:27-28  
D '64 (MIRA 18:2)

SEVERIN, A.

Intensification of internal economic instability in the main  
capitalist countries. Probleme econ 18 no.2:106-120 F '65.

SEVERIN, A.M., inzh.

Composite automatic gain control system operated by the pilot  
signal and signal envelope in the side band. Vest. sviazi 25  
no.10:5-6 S '65. (MIRA 18:11)

SEVERIN, A.M., inzh.; BIRMAN, A. I., inzh.

Increase in the operational bandwidth of the ShAU-51 wide-band antenna amplifier. Vest. svyazi 23 no.3:13-14 Mr '63. . . . (MIRA 16:3)

1. Radiotsent Moskovskoy direktsii radiosvyazi i radioveshchaniya.  
(Radio, Shortwave)      (Amplifiers (Electronics) (Radio—Antennas)

SEVERIN, A.M., inzh.

Adaptation of VS-3 multiplexing apparatus for operation  
in radio communication channels. Vest. svyazi 23 no.8:5-7  
Ag '63. (MIRA 16:11)

SEVERIN, A.M., Inzh.

Prevention of distortions in radiotelephone communication lines.  
Vest. svyazi 25 no.5:15-16 Mr '65. (MIRA 18:5)

SEVERIN, A.V.

MEL'NIK, M.I.; NIKITINA, T.A., kandidat meditsinskikh nauk; BABASEVA,  
Ye.P.; FOKINA, A.I.; KONONOV, O.K.; SEVERIN, A.V.

Treatment of mycoses of the scalp with Lesovykh solutions No.1  
and No.2 without using X rays. Vest. ven. i derm. no.5:21-22  
S-O '54. (MLRA 7:11)

1. Iz Kiyevskogo dermato-venerologicheskogo instituta (dir. G.Ye.  
Koryakin) i Kiyevskogo gorodskogo dispansera (glavnyy vrach A.S.  
Ivanov)

(HEAD, diseases,  
fungus dis., chemother.)

(FUNGUS DISEASES,  
scalp, chemother.)

SEVERIN, B. A.

"Oxydative Metabolism of b. Coli in Presence of Amino Acids," Biokhim., 9, No. 5, 1944.

Mbr., Dept. Biochemistry Microbes, All Union Inst. Exptl. Med., Moscos, -1944-.

GEBLER, I.V.; MARTYNOV, A.M.; SEVERIN, B.M.; SMOL'YANINOV, S.M.

Effect of pressure and moisture on the properties of peat as  
a metallurgical fuel. Torf.prom. 36 no.8:16-20 '59.  
(MIRA 13:3)

1. Tomskiy politekhnicheskii institut.  
(Peat)

Severin, E.

Severin, E. The first Czechoslovak installation of industrial television.  
p. 361.  
M. Couldn't we do it too? p. 363.

Vol. 4, no. 12, Dec. 1956  
SDELOVACI TECHNIKA  
TECHNOLOGY  
Czechoslovakia

So. East European Accessions, Vol. 6, May 1957  
No.5

Severin, E.

Severin, E. First Czechoslovak equipment for industrial television. p. 19.

Vol. 18, no. 1, Jan. 1957

SLABOPROUDY OBZOR

TECHNOLOGY

Czechoslovakia

So. East European Accessions, Vol. 6, May 1957  
No. 5

SEVERIN, E.

"Possibilities for the use of industrial television."

p. 271 (Nova Technika, No. 6, 1958, Praha, Czechoslovakia)

Monthly Index of East European Accessions (EEAI) LC, Vol. 7, No. 9, September 1958.

HOMUTOV, R. M. [Khomutov, R. M.]; KARPEISKI, M. I. [Karpeyskiy, M. Ya.]  
SEVERI", E. S. [Severin, Ye. S.]

Correlation between biological action and chemical properties.  
Analele chimie 17 no.1:156-167 Ja-Mr '62.

L 46290-66 EWT(1) SCTB DD

ACC NR: AP6031122

SOURCE CODE: UR/0217/66/011/002/0364/0366

AUTHOR: Orlovskiy, G. N.; Severin, F. V.; Shik, M. L. 9

ORG: Institute of Biological Physics, AN SSSR, Moscow (Institut biologicheskoy fiziki AN SSSR) B

TITLE: Effect of speed and load on a dog's coordination of movements while running

SOURCE: Biofizika, v. 11, no. 2, 1966, 364-366

TOPIC TAGS: synergy, dog, skeletal mechanics, EEG

ABSTRACT: Previously two of the authors (G. N. Orlovskiy and M. L. Shik), together with Yu. I. Arshavskiy, Ya. M. Kots and I. M. Rodionov, investigated the movements of dogs running on a treadmill and came to the conclusion that over a wide range of running speeds there is a one-to-one correspondence between running speed and the movements of all the limbs which corresponds to the "trot"-type gait. It was noted that the duration of the limb-support phase is much more highly dependent on running speed than are duration and trajectory of limb transfer; Limb transfer was therefore called a "standard" running element. Obviously, a change in treadmill running speed leads to a corresponding change in the load on the animal's motor system: the greater the speed, the greater is the power which the animal must develop. However, such a one-to-one correspondence does not always exist under actual conditions. The

Card 1/3

UDC: 577.37

0918 2347

ACC NR: AP0031122

present article describes the movements of a dog when running under conditions where the power to be developed by the animal's motor system could be made to vary by setting the running speed or in other ways. With pickups placed on the principal joints to transmit joint angles, the animal ran along the belt of the treadmill. Changes in the angles of the joints were recorded on an electroencephalograph. The experimenter could independently vary not only the speed of the electric motor-driven belt, but also the angle of inclination of the belt. A leash tied to the dog's collar made it possible to pull the animal back. Tractive force was measured by a dynamometer.

The authors state that the results obtained forced them to revise some of their previous conclusions. The animal's movements are determined not only by running speed, but also by the magnitude of supplementary load. In cases of significant change in load and running speed there is a change in the amplitudes and velocities of joint movements during the limb-transfer phase, especially marked in the region of low low and running-speed values. Thus,

Card 2/3

L 46290-66

ACC NR: AP6031122

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the transfer phase is not a standard running element in the literal sense although a number of its elements vary slightly over the whole investigated range of velocities and loads. The effect of running speed and load on movements is not the same. Speed affects a greater number of values characterizing the movements of the limbs than does load. Supplementary load changes only values which are affected by speed, with an increase in both speed and load resulting in an increase in the amplitudes and velocities of joint movements. Orig. art. has: 2 figures. [JPRS: 36,932]

SUB CODE: 06 / SUBM DATE: 19Nov65 / ORIG REF: 002

Card 3/3

SEVERIN, I.

"Mathematical statistics with applications in production" by  
N.Rancu, L.Tovissi. Reviewed by I. Severin. Ind text Rum  
14 no.12:599 D'63.

SEVERIN, I.

Aspects of the use of the index of production costs per 1000 lei goods production, expressed in wholesale prices of the enterprise in economical and financial analysis. Ind text Rum 15 no. 5:251-258 My '64.

1. D.G.I.T.C., Ministry of Light Industry.

SEVERIN, I.M., starshiy elektromekhanik.

Let's develop equipment for loudspeaker communications.  
Avtom., telem. i svyaz' 2 no.11:17 N '58. (MIRA 11:12)

1.9-ya distantiya signalizatsii i svyazi Amurskoy deregi.  
(Telecommunication--Equipment and supplies)

SEVERIN, I. S.

USSR/Chemistry - Amino Acids Chemistry - Oxyamino Acids

Nov 48

"Quantitative Reaction on Beta-Hydroxy-Alpha-Amino Acid and on Hydroxyalanine,"  
M. M. Botvinik, A. Ya. Gaukhan, I. S. Severin, Lab Chem Albumin imeni Acad  
N. D. Zelinskiy, Moscow State U imeni M. V. Lomonosov, 2 pp

"Dok Ak Nauk SSSR" Vol LXIII, No 3

Ability of oxyamino acids, heated with acetic and benzoic anhydrides, to change into unsaturated azlactones is basic in working out qualitative reaction on beta-oxyamino acids and individual oxyamino acids. Both reactions from all aminoacids in albumens yield only cystine, which also turns into unsaturated axlactones. Submitted by Acad A. N. Nesmeyanov 7 Jul 48.

PA 55/49T9

BA SEVERIN, I. S.

A II - 1

**Reaction of acid halides of acylated amino-acids with hydroxy-compounds.** M. M. Botvinik and I. S. Severin (*J. gen. Chem. USSR*, 1950, 20, 1062—1067 [U.S. transl., 1101—1107]).—The acid chlorides of acylated amino-acids react with hydroxy-acids and their esters to form deriv. at the hydroxyl group. This reaction does not take place (under the conditions investigated) with *N*-benzoyl deriv. of hippuric acid and benzoylalanine form asialic tones. By the same method, the acid chloride of phenylglycine is converted into *NN'*-diphenyldiketopiperazine. There is no reaction with the *N*-benzoyl deriv. of serine and threonine.

*NHBz-CH<sub>2</sub>-COCl* (II) (from 2.5 g. of *NHBz-CH<sub>2</sub>-CO<sub>2</sub>H* (III)), Et lactate (b.p. 51—53°/10 mm.), and Et<sub>2</sub>O (40 ml.) are heated in the apparatus of Gavrilov *et al.* (*ibid.*, 1948, 18, 960) on a water-bath for 10 hr.; HCl is evolved after the first hr. The white ppt. of hippuric acid, m.p. 184°, is filtered off. The filtrate is concentrated,

giving a ppt. of Et hippuryllactate [1-carboethoxyethyl benzamide-acetate], C<sub>11</sub>H<sub>13</sub>O<sub>4</sub>N (10%), m.p. 106°. I (from 2 g. of II), OEt-CH<sub>2</sub>-CO<sub>2</sub>H (1.5 g.), and Et<sub>2</sub>O (25 ml.) are heated (as above) for 12 hr.; HCl is evolved after 2 hr. The filtered ppt. of hippuryl glycolic acid (carboxymethyl benzamidooxalacetate), C<sub>11</sub>H<sub>13</sub>O<sub>5</sub>N (30%), m.p. 148—149°, is hydrolysed by boiling H<sub>2</sub>O in 30 min. There is no reaction between I and benzoylserine (III) and III (9.95 g.), either Et<sub>2</sub>O or C<sub>6</sub>H<sub>6</sub>. In xylene, I (from 1 g. of II) and III give products include II but no III, so asialic formation is assumed. The residue, after removal of xylene, and hydrolysis by heating, gives a reaction for AcCO<sub>2</sub>H. There is no reaction between I and *N*-benzoylthreonine (IV) in either Et<sub>2</sub>O or C<sub>6</sub>H<sub>6</sub>. *NHBz-CH<sub>2</sub>-COCl* (from 1.5 g. of *NHBz-CH<sub>2</sub>-CO<sub>2</sub>H*), IV (0.9 g.), and C<sub>6</sub>H<sub>6</sub> (40 ml.) are heated for 10 hr.; HCl is evolved copiously, and a sandy-grey ppt. of *NN'*-diphenyldiketopiperazine, C<sub>11</sub>H<sub>13</sub>O<sub>4</sub>N<sub>2</sub> (0.8 g.), m.p. 281°, is obtained. When dil. H<sub>2</sub>SO<sub>4</sub> is added, IV (0.7 g.) is obtained. I (from 2 g. of II) is heated in C<sub>6</sub>H<sub>6</sub> (30 ml.) for 6—10 hr., and the ppt. of II is removed. The solution is concentrated, and NH<sub>4</sub>Ph (1.5 ml.) is added, after which the mixture is heated, giving, on cooling, a ppt. of hippuryl anilide, C<sub>11</sub>H<sub>13</sub>O<sub>4</sub>N<sub>2</sub>, m.p. 212°. Benzoylalanine, m.p. 168°, is converted into the acid chloride, which is boiled in C<sub>6</sub>H<sub>6</sub> for 10 hr. After concentrating, NH<sub>4</sub>Ph is added, yielding a ppt. of benzoylalanine anilide, C<sub>11</sub>H<sub>13</sub>O<sub>4</sub>N<sub>2</sub>, m.p. 169°. C. A. FUSCH.

SEVERIN, L.P.

Principles for the calculation of gravity cableways with variable  
gradient angles. Zap. Len. gor. inst. 34 no.1:133-150 '57.  
(Mine haulage) (Cableways) (MLBA 10:9)

*Severin, L.P.*

ASATUR, K.G., dotsent, kand. tekhn. nauk; SEVERIN, L.P., dotsent, kand.  
tekhn. nauk

Calculating curved air ducts with continuous and regularly spaced  
outlets along their curve. Nauch. dokl. v's. shkoly; gor. dele no.1:  
101-106 '59. (MIRA 12:5)

1. Predstavlena kafedroy Gornoy mekhaniki Leningradskogo gornogo  
instituta im. G.V. Plekhanova.  
(Mine ventilation)

SEVERIN, N.P.

Oscillographic studies of the dynamics of non-submerged jets of  
water. Zap. LGI 41 no.1:62-75 '59. (MIRA 16:5)  
(Jets—Fluid dynamics) (Hydraulic mining)

GERONT'YEV, V.I.; SEVERIN, L.P.

Breaking ~~coals and rocks~~ with jets of water. Zap. LGI 41 no.1:  
17-33 '59. (MIRA 16:5)  
(Kuznetsk Basin--Coal--Testing) (Rocks--Testing)  
(Jets--Fluid dynamics)

KOLCHANOV, V.D.; SEVERIN, L.P.

Breaking materials with a rotating jet of water. Zap. LGI 41 no.1:  
81-87 '59. (MIRA 16:5)  
(Jets--Fluid dynamics) (Hydraulic mining)

ASATUR, K.G., dotsent, kand.tekhn.nauk; KOMAROV, V.B., prof., doktor tekhn.  
nauk; KUROCHKIN, N.N., dotsent, kand.tekhn.nauk; SEVERIN, L.P., dotsent,  
kand.tekhn.nauk

Temperature of air heating in mine heating units. Ugol' 38 no.3:56-57  
Mr '63. (MIRA 18:3)

1. Leningradskiy gornyy institut im. G.V.Plekhanova.

SEVERIN, MARIA

Chemical Abst.  
Vol. 48 No. 9  
May 10, 1954  
Foods

Rapid methods for the determination of ammonia in decaying fish. Józef Wierzchowski, Józef Botwink, and Maria Severin (Wojew. Stacja Sanit.-Epidemiol., Odd. Badania Żywności, Gdańsk). Roczniki Państwowego Zakładu Hig. 1953, No. 3a, 321-30 (English summary).—An organoleptic method for testing fresh fish was compared with the quant. detn. of  $\text{Me}_3\text{N}$ ,  $\text{NH}_3$ , and steam-volatilized bases. To det.  $\text{NH}_3$ , the following method was used: to 2 g. of finely ground fish 40 ml. of 5%  $\text{CCl}_3\text{COOH}$  is added, mixed, and after 15 min. filtered through filter paper. Five ml. of the filtrate is added to 40 ml. distd. water, and an aliqu. of 5 ml. of Nessler's reagent follows. The results of the colorimetric detn. are expressed as Nessler no., whereby one grade corresponds to approx. 2 mg. of  $\text{NH}_3$ /100 g. of fish. Because of its simplicity, rapidity, and reproducibility this method is suitable for use in sanitary-epidemiological station and for general sanitary control detns. Richard Ehrlich

SEVERIN, MARIA

Chemical Abst.  
Vol. 48 No. 9  
May 10, 1954  
Foods

(3)  
Indole as an indicator of decaying fish. Józef Wierchow-  
chowski and Maria Severin (Wojew. Stacja Sanitarno-  
Epidemiol., Oddz. Badania Żywności, Gdańsk). *Acta  
Polon. Pharm.* 10, 181-8 (1953) (English summary). Qual.  
and quant. detns. of indole were made in decaying fish.  
The indole content of fresh sea fish was 0-0.0008 mg./100 g.  
Fish on the borderline of fitness for human consumption  
contained 0.003-0.006, and decaying fish had 0.02-0.056  
mg./100 g. No indole was found in fresh sweet-water fish;  
still edible sweet-water fish had 0.0001-0.003, and decaying  
had 0.04 mg./100 g. of fish. The increase in indole parallels  
the progress of decay, therefore, the detn. of indole can be  
used to evaluate the freshness of fish. Dilns. of Co(NO<sub>2</sub>)<sub>2</sub>  
were used as standards for the colorimetric detn. of indole.  
Richard Ehrlich

SEVERIN, M.

POLAND / Chemical Technology, Chemical Products and Their  
Application. Food Industry.

H-28

Abs Jour : Ref Zhur - Khimiya, No 5, 1959, No. 17450

Author : Wierzchowski, J.; Severin, M.

Inst : Not given

Title : Content of Tin and Iron in Certain Fish Preserves

Orig Pub : Roczn. Panstw. zakl. hig., 1957, 8, No 5, 481-493

Abstract : Presented are data on the determination of Sn, Fe,  
acidity of oil, and acidity of tomato sauce in 6  
varieties of fish preserves used in the studies of  
rates at which the above metals migrated into the  
contents of these preserves. Interdependence between  
acidity of oil and tin content has been established.

Card 1/1

H-120

WIERZCHOWSKI, Jozef; CZARNOWSKA, Wanda; GANOWIAK, Zenon; SEVERIN, Maria

Hygienic evaluation of industrial ice cream production. Roczn  
panstw zakl hig 14 no.6:529-536 '63.

1. Department of Food Science, School of Medicine, Gdansk, and  
School of Statistics and Economics, Gdansk.

SEVERIN, N.

Rivers - Ural Mountain Region

Underground rivers of the Urals, Mol. kolkh., 19, No. 8, 1952

Monthly List of Russian Accessions, Library of Congress October 1952 UNCLASSIFIED

SEVIRUN, N.A., Ind.

Welding of filled polyfluoroethylene-4. Mashinostroenie no. 4:41-42  
JL-Ag '65. (MIRA 28:8)

SEVERIN, Nikolay Aleksandrovich; GALKIN, P.D., redaktor; KOSLOVSKAYA, M.D.,  
tekhnicheskiiy redaktor

[Russian travelers and explorers] Otechestvennye puteshestvenniki i  
issledovateli. Moskva, Gos.uchebno-pedagog. izd-vo Ministerstva  
prosveshcheniia RSFSR, 1956. 300 p. (MLRA 9:8)  
(Explorers, Russian)

SEVERIN, Nikolay Aleksandrovich; MINAYEV, V.A., kandida: geograficheskikh nauk, nauchnyy redaktor; VEDYAYEVA, N.A., redaktor izdatel'stva; KRASNAYA, A.K., tekhnicheskiiy redaktor.

[On the Northern Dvina; guidebook for the Sukhona, Vychegda, and Northern Dvina Rivers] Po Severnoi Dvine; putivoditel' po Sukhone. Vychegde, Severnoi Dvine. Moskva, Izd-vo "Rechnoi transport," 1957. 309 p. (MLRA 10:6)  
(Russia, Northern--Description and travel)

Severin, Nikolay Aleksandrovich

Po Severnoy Kvine; putevoditel' po Sukhone, Vychevde, Severnoy  
Dvine. Moskva, Rechnoy Transport, 1957.

309 p. illus. fold. col. map. 18 cm.

Bibliography: p. 307-(308)

SEVERIN, P.

The villages of Sumy District are in good order. Sil'.  
bud. 11 no.94 S '61. (MIRA 14:11)

1. Redaktor stengazety "Za vysokiy urozhay" kolkhoza imeni  
Chapayeva sela Severinovka, Sumskogo rayona, Sumskoy oblasti.  
(Sumy District - City planning)

L 62539-65 EPT(c)/ENP(k)/ENP(z)/ENT(m)/ENP(b)/T/ENP(d)/ENP(e)/ENP(w)/ENP(t)

PT-h/PC-h/Pr-h IJP(c) JAJ/RH/DJ/MJW/JD

ACCESSION NR: AP5012659

UR/0369/65/001/002/0237/0242

AUTHOR: Afanas'yev, V. F.; Severin, P. A.

TITLE: Antifriction properties of metallopolymeric compositional materials in gases and in a vacuum

SOURCE: Fiziko-khimicheskaya mekhanika materialov, v. 1, no. 2, 1965, 237-242

TOPIC TAGS: friction, metal wear, bronze, stainless steel

ABSTRACT: A previous paper examines friction processes and wear of certain metals in a cryogenic-vacuum assembly. The assembly works on the principle of face friction against an abrasion disc, rotating in a horizontal plane. The coefficient of friction was determined by elastic deformation during twisting of the rods to which the sample holder was fastened. Measurement of wear was based on measurements of linear dimensions and weight loss of samples. Metallographic and x-ray structural analysis show the qualitative changes during these tests. This paper shows results of tests by this method. For a porous base, tin bronze 10 was used with porosity 30-40% obtained by free agglomeration of spherical powder in a reducing medium at 800-850°C. To increase the resistance of the porous layer, the bronze was welded to

Card 1/2

L 62539-65

ACCESSION NR: AP5012659

a steel base. 1Kh18N9T stainless steel, nitrated to HRC = 75 was chosen as a counter-body of friction. The tests showed that gases and a vacuum have a definite effect on the mechanisms of wear of metalopolymer compositional materials. Wear and coefficients of friction of the tested materials in a vacuum (up to  $10^{-3}$  N/m<sup>2</sup>) and in argon, nitrogen and helium is somewhat higher than in air. The effect which specific pressure and rate of slipping have on the coefficient of friction during tests in gases and in vacuum is the same as in tests of dry friction in air. Orig. art. has: 4 figures, 2 tables.

ASSOCIATION: IPM AN UkrSSR, Kiev

SUBMITTED: 07Sep64

ENCL: 00

SUB CODE: MM

NO REF SOV: 003

OTHER: 001

Card 2/2

L 43831-66 ENT(m)/EWP(j)/T IJP(c) DJ/RM

ACC NR: AP6030599

SOURCE CODE: UR/0413/66/000/016/0091/0092

INVENTOR: Severin, P. A.

ORG: none

TITLE: Preparative method for antifriction materials based on floroplast-4. Class 39, No. 185051 [announced by the Institute of the Chemistry of High Molecular Weight Compounds AN UkrSSR (Institut khimii vysokomolekulyarnykh soyedineniy AN UkrSSR)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 16, 1966, 91-92

TOPIC TAGS: antifriction material, teflon, self lubricating material

ABSTRACT: An Author Certificate has been issued for a preparative method for polymer-metal antifriction materials based on floroplast-4 [polytetrafluoroethylene]. The method involves the impregnation of a porous metal base with floroplast-4. To lower the pressure and holding time required for the impregnation, the plastic is used in the form of shavings cut perpendicular to the molding plane of the floroplast-4 block. Finely divided fillers, such as colloidal graphite may be added to the floroplast-4. [SM]

SUB CODE: 11/ SUBM DATE: 14Mar64/ ATD PRESS: 5072

Card 1/1 fv

UDC: 678.743.41+ 678.046.32.002.2

ACC NR: AP7004189

(A, N)

SOURCE CODE: UR/0369/66/002/006/0698/0701

AUTHOR: Gorokhovskiy, G. A.; Bezruk, L. I.; Severin, P. A.; Dudnik, M. I.

ORG: Kiev Institute of Engineers of Civil Aviation (Kiyevskiy institut inzhenerov grazhdanskoj aviatsii)

TITLE: Effect of technological orientation of structure on the wear of polytetrafluoroethylene

SOURCE: Fiziko-khimicheskaya mekhanika materialov, v. 2, no. 6, 1966, 698-701

TOPIC TAGS: polymer structure, polytetrafluoroethylene, wear resistance, chain polymer

ABSTRACT: The wear resistance of polytetrafluoroethylene (PTFE) is investigated as a function of the pattern of alignment of supramolecular formations, which pattern is determined by the technique of processing of the polymer into manufactured articles. The product of the polymerization of PTFE represents a white powder with a fibrous structure which is processed into manufactured articles by pressing and sintering at 360-370°C. The specimens tested were cylinders 30 mm in diameter and 40 mm in height, pressed by means of uniaxial compaction. Such a force field leads to an orientation of supramolecular structures which will persist during subsequent sintering owing to the extremely high viscosity of the PTFE melt. Two series of specimens were tested

Card 1/3

ACC NR: AP7004189

wear out more intensely, which is apparently associated with the greater number of structural defects at such an orientation of the supramolecular formations. Similarly, a rise in temperature acts more destructively on specimens with a structure of the IIc type. This difference in wear resistance can be offset by adding colloidal graphite as a filler during sintering or by partially pulverizing the sintered polymer so as to partially destroy the molecular chains and thus to equalize the structure in the transverse and longitudinal directions. Orig. art. has: 5 fig.

SUB CODE: 11/ SUBM DATE: 18Jun66 / ORIG REF: 015/ OTH REF: 002

Card 3/3

ACC NR: AT7001734

SOURCE CODE: UR/0000/66/000/000/0177/0187

AUTHOR: Severin, P. A.; Gorokhovskiy, G. A.

ORG: none

TITLE: New technological methods for manufacturing metal-polymer antifriction materials on the basis of polytetrafluoroethylene

SOURCE: Vsesoyuznoye soveshchaniye po pererabotke i primeneniyu plasticheskikh mass v narodnom khozyaystve. 1st, Sverdlovsk, 1964. Pererabotka plasticheskikh mass (Processing of plastics); trudy soveshchaniya. Moscow, Izd-vo Khimiya, 1966, 177-187

TOPIC TAGS: friction, metal friction, antifriction material, antifriction bearing, polytetrafluoroethylene, polymer ~~impregnated porous~~ *structure, antifriction metal, graphite*

ABSTRACT: Methods are described for the preparation of polytetrafluoroethylene-filled antifriction materials from porous metals. Filling of the porous metal was achieved by intrusion of specially prepared band-shaped polytetrafluoroethylene (PTFE) under optimum conditions of 400 kg/cm<sup>2</sup> pressure, 390C within 30 seconds into porous tin-bronze. Cylinders from porous tin-bronze were used for the experimental investigation of the antifriction properties of the PTFE-impregnated material.

Card 1/3

ACC NR: AT7001734

As the intrusion of the usual sheet PTFE into porous metals presented difficulties, three special band-shaped modifications of PTFE were developed at the Institute of Macromolecular Compounds of the AS UkrSSR:

- 1) "Structured" band material was obtained by turning or shaving cylinders prepared by pressing the fibrous powder of the common polymer; a layer-like orientation of fibers takes place during the pressing.
- 2) "Filled" band material, which is filled with colloidal graphite was the second modification. As mixing and subsequent sintering of PTFE and graphite cannot be applied with graphite amounts over 10%, baking of the mixtures in sealed molds, which produces an increase of internal pressure because of the expansion of PTFE grains, was attempted with positive results: the expanding polymer grains were welded and graphite was uniformly occluded. Bands were obtained as above.
- 3) "Secondary" band material was obtained by repeated disintegration and sintering of PTFE. The sintering was performed under self-produced pressure of the expanding polymer. The decreased mechanical strength of the band-shaped material indicates that intermolecular forces are weakened and therefore the filling of the capillary pores of the metal items can be achieved at lower pressures and in a shorter time. The rheological properties of all three materials were tested on specially constructed devices. It was found that the maximum flow speed was displayed by the filled modification with 5% colloidal graphite. The frictional properties of the PTFE-filled porous bronze specimens were studied at the

Card 2/3

ACC NR: AT7001734

Institute of Problems of the Science of Materials against lkh18N1OT  
steel. Orig. art. has: 7 figures. [W. A. 28]  
[BN]

SUB CODE: 11, 20/ SUBM DATE: 02Sep66/ ORIG REF: 004/ OTH REF: 013

Card 3/3

Pa. 173T61

USSR/Medicine - Tissue Therapy  
Thyroid

JUL 50

"Treatment by Implantation of the Thyroid Gland by  
Pilatov's Method," G. I. Segal', S. S. Severin, Surg  
Dept, Neurological Dept, Molodechnensky Oblast  
Hosp

"Sov Med" No 7, pp 24-26

Discusses high effectiveness of implantation of  
pieces of the thyroid gland in treatment of various  
path conditions. Found effective in treatment of  
trophic and slow healing ulcers of shanks, of scar

173T61

USSR/Medicine - Tissue Therapy (Contd)

JUL 50

stenosis of stomach, of traumatic epilepsy, and  
in treatment of genuine epilepsy although con-  
siderably less so than in traumatic epilepsy.

173T61

SEVERIN, S., S.,

SEGAL', G.I., kandidat meditsinskikh nauk, zaveduyushchiy (Vileyka); SEVERIN, S.S., zaveduyushchiy (Vileyka).

Tissue therapy by thyroid implants. Klin.med. 31 no.7:89-90 J1 '53.  
(MLA 6:9)

1. Khirurgicheskoye otdeleniye Molodechnenskoy oblastnoy bol'nitsy (for Segal'). 2. Nevrologicheskoye otdeleniye Molodechnenskoy oblastnoy bol'nitsy (for Severin). (Thyroid gland) (Tissue extracts)

PROCESSING AND PROPERTIES INDEX

1/A

Effect of CO<sub>2</sub> tension and temperature on the dissociation curves of the oxyhemoglobin of blood. S. Severin, B. Georgievskii and V. Tunin. *Bull. biol. med. exp.* U. R. S. S. I, 137-8(1936).—Changes in temp. (28°, 33°, 38°) at const. pressure (38 mm. of Hg) and in pressure (20.4, 56 mm.) at const. temp. (37.5°) considerably alter the positions of the curves, but not their shapes. The degree of aggregation of the hemoglobin mols. increases as the O<sub>2</sub> tension increases, but is unaffected by changes in temp. or CO<sub>2</sub> tension. B. C. A.

Byul. Biol. Med. Eksp.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

6-2

1ST AND 2ND ORDERS																										100 AND 4TH ORDERS																									
PROCESSES AND PROPERTIES INDEX																																																			
<p><b>The fate of carnosine in the animal organism. I. The action of carnosine upon autolytic processes in muscle tissue.</b> N. P. Meshkova and A. I. Zolotarevskaya. <i>Bull. biol. med. expil. U. R. S. S. 4</i>, 50-2 (1937) (in English). Portions of muscle tissue of rabbits were placed in a thermostat for 1-3 days in carbonated Ringer soln. with and without the addn. of carnosine (I). It was found that the presence or absence of I does not affect the course of the increase in nonprotein N, amino acid N, ammonia N or the N fraction showing a diazo reaction. Purine and creatine-creatinine fractions do not change. In all cases there was a slight acid shift at the end of the reaction. No breakdown of I with accumulation of ammonia N was observed. Histidine was absent in all cases. <b>II. The splitting of carnosine by kidney tissue enzymes.</b> S. E. Severyn and E. F. Georgievskaya. <i>Ibid.</i> 53-6 (in English). The kidney tissue of rats and rabbits contains peptidases which produce a strong hydrolytic splitting of carnosine at <math>pH</math> 7.3 under both aerobic and anaerobic conditions. <b>III. The splitting of carnosine under the influence of the peptidases of organs and tissues of the animal organism.</b> P. G. Garkavi. <i>Ibid.</i> 57-61 (in English); cf. <i>C. A.</i> 32, 3776. Freshly prepd. ground tissue of the liver and kidney, the red blood cells of rabbits and rats, and rabbit brain tissue contain peptidases which produce hydrolytic splitting of carnosine (I). When the tissue of the liver, kidney, spleen or muscle was used in the form of a dry powder no splitting of I occurred. Glycerol exts. of the liver and spleen were also active in splitting I. <b>IV. The influence of carnosine upon glucolysis and breakdown of adenosinetriphosphoric acid in muscle tissue.</b> R. Ya. Yudelovich. <i>Ibid.</i> 62-4 (in English). The quantity of pyrophosphate in the muscle tissue of rats and the brain tissue of rabbits decreases upon incubation in the presence of carnosine (I). I inhibits glucolysis. It is suggested that I exhibits a specific action upon the system that catalyzes glucolysis. S. A. K.</p>																																																			
<p>ASB-5LA METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			

SEVERIN. S.E.

The conversion of carnosine in the kidneys S.E. SEVERIN AND  
E. GEORGIEVSKAYA. ( BIOCHEMICAL LAB. 3rd. MOSCOW MEDICAL INSTITUTE ) vol.3,  
no.2, p. 148, 1938.

1ST AND 2ND ORDERS										3RD AND 4TH ORDERS									
PROCESSES AND PROPERTIES INDEX																			
<p>ca</p> <p>11F</p> <p>Transformation of carnosine in the animal organism.  S. H. Severin. <i>Acta Med. U. R. S. S.</i> 2, 000-15(1939)  (in French); cf. <i>C. A.</i> 34, 0685. —Ground rat muscle was  put in a Ringer soln. contg. carnosine and incubated 24-72  hrs. The proteins were pptd. with <math>\text{Cl}_2\text{CCO}_2\text{H}</math> and the  total N, amino N, creatine, creatinine and carnosine detd.  in the filtrate. Controls without carnosine were run.  There were no differences between the 2 sets of expts. In  the presence of carnosine there was a marked retardation  of the formation of lactic acid and an increase in the break-  down of pyrophosphate. Incubation of renal tissue with  carnosine at 37° greatly increased amino N and ammonia  N. Sep. addn. of <math>\beta</math>-alanine or of histidine had no effect.  Felix Saunders</p>																			
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ca

The relation between carnosine and muscle protein  
S. E. Severin, V. H. Tyunin and O. A. Shishova. *Bio-  
khimiya* 6, No. 4/5, 447-452 (1941) (German summary). —  
Ultrafiltration of muscle plasma caused 30-40% of the  
carnosine contained in the plasma to pass into the filtrate.  
This is taken to indicate that the carnosine is fixed by the  
proteins in the muscle plasma. Electrolysis of muscle  
caused its collection to collect in the cathode cell. The  
rate of its collection there was lower than in the electro-  
dialysis of aq. solus. of carnosine or filtrates of boiled  
minced muscle. The low rate of travel of electrolyzed  
carnosine is due to its being fixed to substances that can-  
not penetrate a colloidal membrane. In an elec. field the  
protein from muscle plasma and carnosine move toward  
the anode at pH 8.4, notwithstanding the fact that carno-  
sine is positively charged. In cataphorizing boiled muscle  
plasma carnosine moves toward the cathode and protein  
toward the anode. Apparently in muscles carnosine is  
bound to proteins. M. Hosh

CHAIR OF BIOLOGICAL CHEMISTRY OF THE THIRD MOSCOW MEDICAL INSTITUTE

ca

PROCESSES AND PROPERTIES INDEX

Fate of  $\beta$ -alanine in kidney tissue. S. E. Severin and R. Ya. Yudelovich. *Biokhimiya* 9/81-9(1944); cf. C. A. 32, 8513<sup>9</sup>.—Arsenious acid, malonic acid and octyl alc., which have no effect on the decarboxylation of  $\alpha$ -alanine, completely prevent the formation of  $\text{NH}_3$  from  $\beta$ -alanine by minced kidney tissue. During the first several hrs. of incubation, all of the  $\beta$ -alanine has disappeared, although no extra  $\text{NH}_3$  or amino groups have been formed. Since  $\text{O}_2$  takes part in the transformation, it is considered that the  $\beta$ -alanine is oxidized to a substance which evolves  $\text{NH}_3$ . H. Priestley

11A

CHAIR OF BIOCHEMISTRY, FIRST MOSCOW MEDICAL INSTITUTE

ASB 31.4. METABOLICAL LITERATURE CLASSIFICATION

bc

No. 2

biochemical basis of favourable effect of glucose on the preservation of blood. S. E. Sevrin (Biochimia, 1946, 11, 139-146).— In glucose-citrate-blood hemolysis acts in earlier if P<sup>+</sup> or bromoacetate has been added, whilst it is delayed if glucose is added. Glucose also delays hemolysis of washed red cells suspended in Ringer's solution. The effect of glucose may be to maintain the metabolism of the red cell. As evidence for this it is shown: (1) hemolysis occurs with the appearance of free PO<sub>4</sub> (probably liberated from enzyme systems), (2) hemolysis appears as soon as glucose concn. ceases to fall, (3) hemolysis is delayed by addition of adenosine triphosphate, (4) hemolysis may occur with high glucose content of blood if glycolytic activity has been lost. D. H. S.

CHAIR OF ANIMAL BIOCHEMISTRY, MOSCOW UNIVERSITY AND THE LABORATORY OF BIOCHEM. OF THE INST. OF HEMATOLOGY AND BLOOD TRANSFUSIONS OF THE ACD. OF MED. SCI. MOSCOW

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<p><i>Ca</i></p> <p><b>Synthesis and properties of phosphocarnosine.</b> S. E. Severin, E. F. Georgievskaya, and V. I. Ivanov (Moscow Med. Inst.: <i>Biokhimiya</i> 12, 35-48(1947). -Phosphocarnosine (I) was prepd. from carnosine and POCl<sub>3</sub> by a method very similar to that used by Zeile and Fawaz (C.I. 33, 1070). I consists largely of diphosphocarnosine, with a PO<sub>3</sub>H group attached to the N of the imidazole ring, and another PO<sub>3</sub>H, replacing a H of the NH group of <math>\beta</math>-alanine. A small amt. of a monophospho compd. contg. a free imidazole ring is also formed. I is stable in neutral and in alk. solns., but is easily decompt. by acids. the const. of hydrolysis in 0.1 N HCl at 45° is equal to <math>0.05 \times 10^{-3}</math>. I is less stable in acid than either phosphocreatine or phosphoguanine. In expts. of rat muscle, I is enzymically split, so that the increase in the inorg. phosphate corresponds to the decrease of the hydrolyzable phosphate fraction. The hydrolysis of I by minced frog muscle is such that the increase of inorg. phosphate is much less than the decrease of the hydrolyzable phosphate. This points to a transport of phosphate from I to other compds.</p> <p>H. Priestley</p>																									
<p>ASB-5LA METALLURGICAL LITERATURE CLASSIFICATION</p>																									

11-A

CA

Synthesis and properties of phosphorylated  $\beta$ -alanine,  $\beta$ -histidine, and  $\alpha$ -alanine. S. E. Severin and R. Ya. Yudelovich (Moscow Med. Inst.). *Biokhimiya* 12, 105-10 (1947).—By the action of  $\text{POCl}_3$  and alkali, as described for phosphocarnosine (C.A. 41, 4821h), the monophospho derivs. of the following amino acids were prepd.:  $\beta$ -alanine,  $\beta$ -histidine, and  $\alpha$ -alanine. In  $\beta$ -histidine, the phospho group is attached to the N of the imidazole ring, since the diazo reaction is much weakened. All 3 phosphorylated compds. were decompd. to the extent of 80% on standing for 10 min. in  $\text{N HCl}$  soln. The enzymic hydrolysis was rapid and complete when the phosphorylated  $\beta$ -alanine and  $\beta$ -histidine were treated with aq. exts. of muscle, liver, and kidney tissues. Only up to 60% of the phosphorylated  $\alpha$ -alanine was thus enzymically split. H. Priestley

ASAC-SLA METALLURGICAL LITERATURE CLASSIFICATION

RECORDING UNIT

REVISIONS

REVISIONS

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PROCESSES AND PROPERTIES INDEX																																																			
<p>CA</p> <p>The peculiar enzymic hydrolysis of carnosine. N. P. Meshkova and S. E. Severin (Moscow Univ.). <i>Biokhimiya</i> 12, 200-7(1947). It had previously been detd. that glycerol exts. of various tissues were incapable of hydrolyzing carnosine, but readily split leucylglycine; this indicates that the tissues contained a typical dipepti-</p> <p>11 A</p> <p>LAB. OF ANIMAL BIOCHEM.</p> <p>ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			
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<p><i>CA</i></p> <p>Mitrofanov, P. P. and Sorokin, S. E.: Uchebnik  Fizicheskoi i Kolloidnoi Khimii. 2nd ed. Moscow:  Medgiz. 1948. 400 pp. 14.50 r.</p> <p style="text-align: right;">2</p>																																																																					
<p>ASIA-3LA METALLURGICAL LITERATURE CLASSIFICATION</p>																																																																					
<table border="1"> <thead> <tr> <th colspan="10">SUBJECTS</th> <th colspan="10">AUTHORS</th> <th colspan="10">TITLES</th> </tr> </thead> <tbody> <tr> <td colspan="10"> <p>1. 2. 3. 4. 5. 6. 7. 8. 9. 10.</p> </td> <td colspan="10"> <p>11. 12. 13. 14. 15. 16. 17. 18. 19. 20.</p> </td> <td colspan="10"> <p>21. 22. 23. 24. 25. 26. 27. 28. 29. 30.</p> </td> </tr> </tbody> </table>										SUBJECTS										AUTHORS										TITLES										<p>1. 2. 3. 4. 5. 6. 7. 8. 9. 10.</p>										<p>11. 12. 13. 14. 15. 16. 17. 18. 19. 20.</p>										<p>21. 22. 23. 24. 25. 26. 27. 28. 29. 30.</p>									
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SEVERIN, S. Ye.

PA 3/49T77

USSR/Medicine - Carnosine  
Medicine - Carbohydrates

Mar/Apr 48

"Effect of Carnosine on the Carbohydrate-Phosphorus  
Exchange of Muscles," S. Ye. Severin, V. I. Ivanov,  
N. P. Karuzina, R. Ya. Yudelovich, Chair of Med Chem,  
Moscow Med Inst, MZ RSFSR, 11 pp

"Biokhimiya" Vol XIII, No 2

Reports series of experiments. Carnosine, when added  
to suspension of frog's muscle in phosphate buffer  
solution, accelerates esterification of inorganic  
phosphate and whole process of glycogenolysis. De-  
scribes action of histidine, anserine and  $\beta$ -alanin.  
Submitted 1 Aug 47.

3/49T77

SEVERIN, S. YE.

PA 3/50T64

USSR/Medicine - Muscles, Spinal  
Anserine 11 Sep 49

"Carnosine and Anserine Content of Spinal Muscles  
at Various Ontogenetic Stages," S. Ye. Severin,  
Active Mem, Acad Sci USSR, N. A. Yudayev, 34 pp

"Dok Ak Nauk SSSR" Vol LXVIII, No 2-4p. 353-6

Tables give carnosine and anserine content in  
rabbits and rooks at various ages from embryo to  
adult. Apparently carnosine first increases, then  
decreases, while anserine increases greatly.  
Seems probable that carnosine characterizes a

3/50T64

USSR/Medicine - Muscles, Spinal 11 Sep 49  
(Contd)

lower functional level than the more complex  
anserine and that, phylogenetically, progress  
in contracting tissue passes from the lower to  
the higher functional level.

3/50T64

CA

Effect of carnosine and anserine on carbohydrate-phosphate metabolism of red breast muscle of pigeon. S. B. Severin, and N. P. Meshkova. *Doklady Akad. Nauk S.S.S.R.* 74, 549-52 (1950).—Addn. of anserine or carnosine to minced muscle specimens in phosphate buffer (pH 7.0-8.1) with 0.025 M NaF in O or N atm. showed greater decline of inorg. P than in controls. The P was found in the difficultly hydrolyzable fraction. Aerobic conditions gave more clearly defined results than did anaerobic. Carnosine led to greater O consumption by the tissue, but this effect was destroyed by bromoacetate ion. Thus carnosine appears to take part in formation of phosphoglyceric acid from phosphoglycerdehyde and in conversion of pyruvic acid into lactic acid. Confirmation was had in increase of binding of inorg. P when pyruvate was added to the mixt. in incubation under anaerobic conditions in presence of NaF. No phosphopyruvic acid was detected. G. M. K.

CA

117

Change in the content of carnosine, anserine, and creatine in the ontogenesis of animals. S. E. Severyn and N. A. Fudakov (Acad. Med. Sci., Moscow). *Biochimica* 16, 280-31 (1951); cf. *C.A.* 44, 724a.—About 45 mg. % of creatine is present in the muscle of rabbits, on the 30th day of embryonic development. Carnosine makes its appearance (23 mg. %) on the 24th day of development. Anserine is entirely absent in rabbit embryo muscle. The creatine content gradually increases in the postnatal period, reaching a value of about 800 mg. % in adult rabbits. Carnosine increases in young rabbits to a max. of about 190 mg. %, and then declines to about 70 mg. % in adult rabbits. Anserine first appears on the 7th day, and gradually increases to about 450 mg. % in adult rabbits. Considerable carnosine, but no anserine, is present in young rooks, whereas in adult rooks, the carnosine content is low, and anserine is high. Phylogenetically, the results indicate that carnosine is of greater antiquity than anserine.

H. Priestley.

✓ The influence of dipeptides, carnosino, and anserine on the carbohydrate, phosphorus, and oxidative metabolism of muscle. S. R. Severin (Univ. Moscow, U.S.S.R.). *Congr. intern. biochim., Résumés communs., 2<sup>e</sup> Congr., Paris 1952, 420 (in French); cf. C.A. 48, 1511c, 6899b.*—Other work of S. is discussed, with some possibly new material.

W. C. Tobie

SEVERIN, S.Ye.; DIKANOVA, A.A.

Carbohydrate-phosphorus metabolism of the smooth muscles. Biokhimiia,  
Moskva 17 no.5:584-592 Sept-Oct 1952. (GLML 25:1)

1. Laboratory of Animal Biochemistry of the Soil Biology Institute,  
Moscow State University.

CA

11-F

Contents of carnosine, anserine, histidine, and  $\beta$ -alanine in skeletal muscle of hens during embryonic development. S. E. Severin and V. N. Fedorova. *Doklady Akad. Nauk S.S.S.R.* 82, 443 (1952). The chromatographic method was used for the detn. of the above substances in leg muscles of embryos from the age of 10 days to hatching. Carnosine appears on the 14th day, anserine on 17th. Histidine is present from the early days, while  $\beta$ -alanine is apparent from 10th day on. Histidine declines sharply after the 18th day, while  $\beta$ -alanine shows a slow decline throughout the period. The other components show a steady rise. G. M. K.

CA

10

*Effect of carnosine on oxidative phosphorylation.* S. R. Severin and N. P. Meshkova. *Doklady Akad. Nauk S.S.S.R.* 84, 105-A (1952).—Minced pigeon-breast muscle incubated in phosphate buffer in the presence of 0.025 M NaF, with addn. of creatine to detect the formation of adenosine triphosphate, was examd. as to oxidative phosphorylation in the presence of carnosine. The incubated specimens were chilled and pptd. with trichloroacetic acid and the filtrate used for detn. of labile phosphate. Phosphocreatine was detd. by addn. of 1 ml. filtrate to 1 ml. molybdate reagent and letting stand several hrs.; after filtration, the soln. was neutralized and the creatine detd. by means of picric acid. Incubation of the tissue in anaerobic conditions gave no labile phosphate; in expts. with detn. of consumed O, the addn. of carnosine raised the respiration of the tissue, the 2 factors being proportional to each other. Formation of phosphoglyceric acid was independent of added carnosine. Hence labile P does not depend on glycolytic oxidation-reduction. The O consumption in presence of carnosine is independent of added creatine, but significant amounts of labile P arise only when both creatine and carnosine are added. The added carnosine does not appear to undergo any changes. The labile P formed in respiratory phosphorylation with added carnosine is not only phosphocreatine; the lability of the substance prevented its isolation. Possibly it is phosphocarnosine. G. M. Kosolapoff

SEVERIN, S.Ye.; MILOVIDOVA, M.K.; BEKINA, R.M.

Effect of carnosine on phosphorylation in the cardiac muscle.  
Doklady Akad. nauk 86 no. 5:1001-1004 11 Oct 1952. (CIAM 23:3)

1. Active Member of the Academy of Medical Sciences USSR for  
Severin.

SEVERIN, S. E.

Chemical Abstracts  
May 25, 1954  
Biological Chemistry

Effect of anserine on respiratory phosphorylation. S. E. Severin and N. P. Mesikova. *Doklady Akad. Nauk S.S.S.R.* 92, 807-10(1953); cf. *C.A.* 46, 8170c. —The participation of anserine in respiratory phosphorylation as studied with pigeon breast muscle does not take place specifically at formation of adenosinetriphosphate (ATP), but must take place at some stage which is intermediate between direct oxidation of the substrate and formation of ATP. Such studies cannot be run in the presence of NaF since the latter retards the utilization of  $O_2$  by the tissue and accumulates labile P. Addn. of anserine without NaF leads to formation of excess labile phosphate which is proportional to the amt. of added anserine (up to 1000 mg. %). The intensity of respiration and phosphorylation under these conditions is linear for 40-50 min. at 20-25°; in longer runs the formation of labile phosphate begins to decline. Addn. of small amounts of  $\alpha$ -ketoglutaric acid raises respiration intensity and increases the concn. of labile phosphate; if anserine is also added the resulting excess is nearly the sum of the individual increments. The same relation is found for  $O_2$  consumption. Carnosine shows a similar but much weaker action than anserine. G. M. Kosolapoff

NIH Trans- /M.